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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/964,639 | 09/28/2001 | Dang-Gyu Kim | 6192.0186.AA | 1991 |

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|---------------------------|--------------|
| EXAMINER | |
| CHOWDHURY, TARIFUR RASHID | |
| ART UNIT | PAPER NUMBER |

2871

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|---------------------|---------------|
| Office Action Summary | Application N . | Applicant(s) |
| | 09/964,639 | KIM, DONG-GYU |
| Examiner | Art Unit | |
| | Tarifur R Chowdhury | 2871 |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 18 April 2003.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 14-26 and 36-40 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 14-26 and 36-40 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 28 September 2001 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) The translation of the foreign language provisional application has been received.
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The disclosure is objected to because of the following informalities:

In page 12, line 16, "220" should be changed to -270--.

In page 16, line 23, "40" should be changed to -450--.

Appropriate correction is required.

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 14, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 14, applicant recites first contact holes and second contact holes.

Further, in lines 15 and 16, applicant recites that, "the contact holes having a lateral side bordering on the signal line, the lateral side of the contact hole having a length greater than the width of the contact hole;" However, it is not clear as to which contact hole applicant is referring to since there are first contact holes and second contact holes. Further, it is also not clear as to whether the length of the lateral side of the first contact holes is greater than the width of the second contact holes or the length of the lateral side of the second contact holes is greater than the width of the first contact holes or the length of the lateral side of the first contact hole is greater than the width of the first contact hole or the length of the lateral side of the second contact hole is greater than the width of the second contact hole. Therefore, claim 14 is vague and indefinite.

It appears from the specification that applicant is referring to the second contact hole that expose the respective signal lines with a predetermined width having a lateral side bordering on the signal line, the lateral side of the second contact hole having a length greater than the width of the second contact hole. Therefore, for examination purposes the examiner has considered that the second contact hole that is exposing the respective signal lines have a lateral side length greater than the width of the second contact hole.

7. Claim 18 recites the limitation "the signal leads of the signal transmission film" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

It appears that claim 18 should be dependent from claim 17 instead of claim 14.

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8. Claim 19 recites the limitation "the same voltage" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al., (Park), US 2002/0093616.

11. Park discloses and shows in Figs. 7 and 8, a display device, comprising:
- a first substrate having a plurality of gate lines (141) and a plurality of data lines (143);

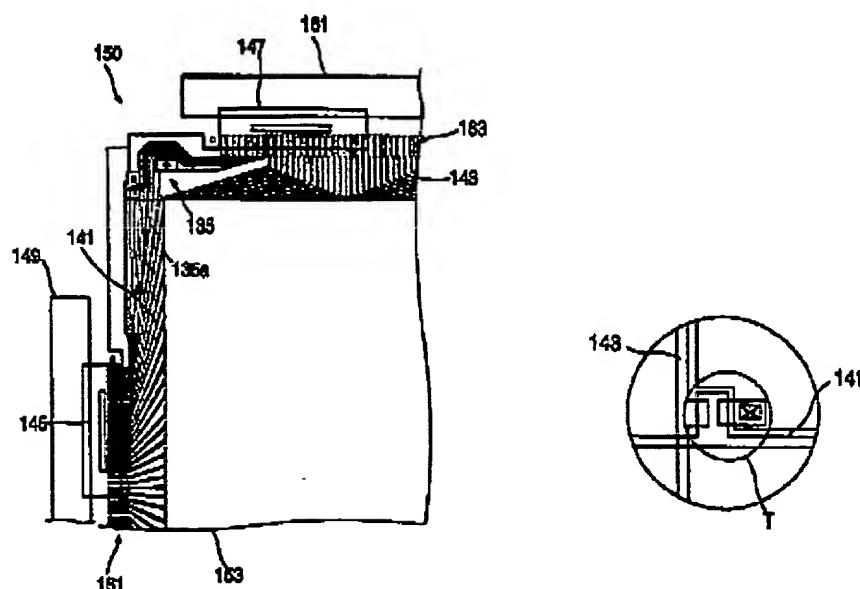


FIG. 8

FIG. 7

- a plurality of thin film transistors (T) electrically connected to the gate lines (141) and the data lines (143);
 - a plurality of pixel electrodes electrically connected to the thin film transistors respectively (page 1, paragraph 0006);
 - a plurality of gate driving ICs (145) to output gate signals to the gate lines (141) (page 3, paragraph 0035);
 - a plurality of source driving ICs (147) (applicant's data driving ICs) to output data signals to the data lines (143) (page 3, paragraph 0035); and
 - a plurality of gate transmitting lines (135) (applicant's interconnection lines) apply gate control signals to at least one of the gate driving ICs (145) (page 3, paragraph 0035).

Park also discloses (page 1, paragraph 0003) that his invention is related to a liquid crystal display device and he further discloses that generally a liquid crystal display device includes an upper substrate, a lower substrate, and an interposed liquid crystal therebetween (page 1, paragraph 0005).

Park differs from the instant invention because he does not explicitly disclose the claimed black matrix overlapping at least one of the interconnection lines.

It is common and known in the art to form black matrix on a substrate opposite to the substrate where the gate lines and the data lines are formed and outside the display area (interconnection lines are typically formed outside the display area) so that it overlaps the interconnection lines in order to prevent light leakage and thus improve display quality.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display device of Park by forming a black matrix such that it overlaps the interconnection lines so that light leakage is prevented and display quality is improved.

Accordingly, claim 36-38 would have been obvious.

As to claim 39, Park also discloses and shows in Fig. 7 that the device further comprising a gate PCB (149) and a source PCB (151) (applicant's driving signal transmission film) wherein at least one of the data driving ICs (147) is mounted on the driving signal transmission film (151) (pages 3-4, paragraph 0054).

As to claim 40, it is clear from Fig. 7 of Park that the driving signal transmission film (149 and 151) outputs the gate control signals and the data signals to the interconnection lines and the data lines respectively.

Allowable Subject Matter

12. Claim 14 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 15-26 are allowable due to their dependencies.

13. The following is a statement of reasons for the indication of allowable subject matter:

14. The prior arts of record do not anticipate or render obvious to one skilled in the art a liquid crystal display comprising various elements as claimed, more specifically the second contact hole that expose the respective signal lines with a predetermined width having a lateral side bordering on the signal line, the lateral side of the second contact

hole having a length greater than the width of the second contact hole and pixel electrodes connected to the drain electrodes and subsidiary signal pads connected to the signal lines standing in the same plane.

15. USPAT 6,172,721 (Murade) discloses an active matrix liquid crystal display including gate line assemblies including plurality of signal lines, data lines assemblies, gate insulating layer, semiconductor pattern, drain electrode, source electrode and contact holes. However, Murade alone or in combination fails to disclose the limitation such as the second contact hole exposing the respective signal lines with a predetermined width having a lateral side bordering on the signal line, the lateral side of the second contact hole having a length greater than the width of the second contact hole and pixel electrodes connected to the drain electrodes and subsidiary signal pads connected to the signal lines standing in the same plane.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) US 2001/0026345 is related to a liquid crystal display device wherein a plurality of transmitting wires are electrically connected with the gate and source pads across the sealant such that the source PCB is electrically connected with the gate PCB.
- b) USPAT 6,097,457 is related to a liquid crystal display device wherein the light-shielding layer overlaps the drive wires with a minimum area.
- c) USPAT 5,909,035 is related to a thin film transistor array having a static

electricity preventing circuit.

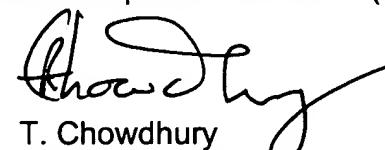
- d) USPAT 6,104,465 is related to a liquid crystal display device having interconnection lines with uniform resistance.
- e) USPAT 5,739,880 is related to a liquid crystal display device wherein the black matrix is formed outside the display area.
- f) USPAT 5,208,690 is related to a liquid crystal display including two contact holes that are formed through an insulating layer at its position corresponding to a drain of a switching thin film transistor and a height of a wall portion between two contact holes is selected to be smaller than that of surrounding insulating layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (703) 308-4115. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William L Sikes can be reached on (703) 305-4842. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7005 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRC
May 31, 2003



T. Chowdhury
Primary Examiner
Technology Center 2800